

AME 513 – Principles of Combustion – Fall 2012

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Textbooks

- PDR's lecture notes (to be distributed)
- Prof. Egolfopoulos's AME 513 course notes (to be distributed)
- Steven R. Turns, *An Introduction to Combustion: Concept and Applications*, 3rd Ed., 2012
<http://catalogs.mhhe.com/mhhe/viewProductDetails.do?isbn=0073380199>

Optional references

- *Combustion Theory*, by Forman A Williams, 2nd Edition, Addison-Wesley, 1985.
- *Combustion, Flames, and Explosions of Gases*, by Bernard Lewis and Guenther von Elbe, 3rd Edition, Academic Press, 1987.
- *Combustion*, by Irvin Glassman and Richard Yetter, 4th Edition, Academic Press, 1996.

Schedule: 1 lecture per week, Fridays 9:00 – 11:50 am, OHE 100D

Midterm exam: Friday Oct. 19, 9:00 am – 10:30 am

Final exam date: Monday, Dec. 17, 11:00 am – 1:00 pm

Recommended preparation: AME 310 (thermodynamics), AME 309 (Fluid Mechanics) and AME 331 (Heat transfer) or equivalents

Grading:

- Homework (30%) (4 homework assignments, lowest grade dropped, 10 points per day penalty for late assignments)
- Midterm exam (30%)
- Final exam (40%)

Topics:

- Introduction (1 week)
- Building blocks
 - Chemical Thermodynamics (2 weeks)
 - Chemical Kinetics (3 weeks)
 - Transport Phenomena (1 week)
- Combining the building blocks
 - Conservation Equations (1 week)
 - Premixed Flames (3 weeks)
 - Non-Premixed Flames (3 weeks)

Further information: <http://ronney.usc.edu/AME513S12/>